Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Please Amend the Claims as Follows:

Claims 1-12 (Canceled).

Claim 13 (previously presented): A multilayer structure for use in a device for detection of microwave, millimeter, infrared (IR), ultraviolet, X-ray or gamma radiation comprising:

a silicon based substrate; and

an epitaxial $Cd_{1-z}Zn_zX_xX'_{1-x}$ film grown on the silicon based substrate by molecular beam epitaxy from multiple material sources where the flux of each of the multiple material sources is controlled under a given set of epitaxial growth conditions including temperature, where X is a chalcogenide selected from the group consisting of S and Se; X' is a higher atomic number chalcogenide relative to X and X' is selected from the group consisting of S, Se and Te; x is a number greater than zero and less than or equal to [.095] .097; and z is a number greater than or equal to [.005] .003 and less than or equal to .02 [.015], such that x+z is a value less than or equal to .10;

a radiation sensing $Hg_{1-y}Cd_yTe$ layer grown on the $Cd_{1-z}Zn_zX_xX'_{1-x}$ film, the $Hg_{1-y}Cd_yTe$ layer being substantially lattice matched to the $Cd_{1-z}Zn_zX_xX'_{1-x}$ film, where y is a number between .15 and .35 such that the effects of any mismatch are insignificant to device performance and the surface defect density is less than 500 per centimeter squared.

Claim 14 (previously presented): The multilayer structure of claim 13, wherein X is Se and X' is Te, and wherein the concentration of Zn and Se approaches two percent and x+z approaches .04 and the epitaxial layer is grown by substrate rotation throughout the growth process to produce lateral surface uniformity and low film dislocation density.

Claim 15 (previously presented): The multilayer structure of claim 13 wherein the structure is used for the detection of long wavelength IR, x+z is between 0.01 and 0.08 and y is approximately .22.

Claim 16 (cancelled).

Claim 17 (previously presented): The multilayer structure of claim 15 wherein X is Se and X' is Te.

Claim 18 (previously presented): The multilayer structure of claim 14, wherein y is between 0.15 and 0.30, and wherein the radiation sensing layer senses IR radiation.

Claims 19-24 (cancelled).

Claim 25 (previously presented): A $Cd_{1-z}Zn_zSe_xTe_{1-x}$ film grown by molecular beam epitaxy on a silicon based substrate, where x is a number between zero and one inclusive and z is greater than zero and less than or equal to .02; having an overlayer of $Hg_{1-y}Cd_yTe$

thereon for the detection of infrared (IR) radiation, wherein the $Cd_{1-z}Zn_zSe_xTe_{1-x}$ film is substantially lattice matched to the overlayer of $Hg_{1-y}Cd_yTe$.

Claim 26 (previously presented): The film of claim 25, wherein x+z is between 0.03 and 0.08 and y varies within a range of approximately .2 for long wavelength IR (LWIR) to a value of .4 for short wavelength IR.

Claims 27-68 (cancelled).

Claim 69 (previously presented): A $Cd_{.97}Zn_{.03}Se_{.01}Te_{.99}$ film grown on a single crystal silicon (2 1 1) oriented based substrate, having an overlayer of $Hg_{.78}Cd_{.22}Te$ thereon, wherein the growth of the $Cd_{.97}Zn_{.03}Se_{.01}Te_{.99}$ film is substantially lattice matched to the overlayer of $Hg_{.78}Cd_{.22}Te$.

Claim 70 (previously presented): The $Cd_{.97}Zn_{.03}Se_{.01}Te_{.99}$ film grown on a single crystal silicon (2 1 1) oriented based substrate recited in claim 69, where the $Cd_{.97}Zn_{.03}Se_{.01}Te_{.99}$ film is grown on the single crystal silicon (2 1 1) oriented based substrate utilizing CdTe (2 1 1)B face.

Claim 71(new): The multilayer structure of claim 13 wherein the epitaxial $Cd_{1-z}Zn_zX_xX'_{1-x}$ film is a $Cd_{.97}Zn_{.03}Se_{.01}Te_{.99}$ film grown on a single crystal silicon (2 1 1) oriented based substrate, and wherein the radiation sensing $Hg_{1-y}Cd_yTe$ layer is a $Hg_{.78}Cd_{.22}Te$ layer.

Claim 72 (new): The multilayer structure of claim 71 wherein $Cd_{.97}Zn_{.03}Se_{.01}Te_{.99}$ film is grown on the single crystal silicon (2 1 1) oriented based substrate utilizing the CdTe (2 1 1)B face.

Claim 73(new): The multilayer structure of claim 13 wherein the epitaxial $Cd_{1-z}Zn_zX_xX'_{1-x}$ film is a $Cd_{1-z}Zn_zSe_xTe_{1-x}$ film.

Claim 74 (new): The multilayer structure of claim 73, wherein x+z is between 0.03 and 0.08 and y varies within a range of approximately .2 for long wavelength IR (LWIR) to a value of .4 for short wavelength IR.